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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,581	02/07/2002	Phil P. Marcoux	56987P014D	3947

7590 07/27/2004

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EXAMINER

LEE, KYUNG S

ART UNIT PAPER NUMBER

2832

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,581

Applicant(s)

MARCOUX ET AL.

Examiner

Kyung S. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-19 and 41-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 53 and 54 is/are allowed.
- 6) ☒ Claim(s) 13-19 and 41-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 13, 14, 42-43 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi (4,416,056).

Takahashi teaches a packaged inductor (see abstract) comprising:

a substrate 24 (see fig. 9);

a first insulating layer 26 over the substrate 24;

posts 16 over the insulating layer 26;

a conductive layer 28 deposited on top of the posts 16 and in a pattern (see fig. 10 for patterns) on the substrate;

a protective layer 13 (comprising of 13 and 37, see col. 4, line 44 and col. 5, line 20 for the protective layer 13 and 37) over the conductive layer 28, the posts 22 and the first insulating layer 26; and

a second insulating layer 46 exposing (see reference number 43) the conductive layer 28 on the top of the post 16.

Claims 13, 42 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen (4,152,679).

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Chen teaches a packaged inductor (see col. 1, lines 12 and 62) comprising:

- a substrate 10 (see figs. 2 and 3);
- a first insulating layer 14 over the substrate 10;
- posts 22 over the insulating layer 14;
- a conductive layer 26 deposited on top of the posts and in a pattern on the substrate; and
- a protective layer 72 over the conductive layer 26, the posts 22 and the first insulating layer 14.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 16 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Matsuyama et al. (5,208,656; Applicant submitted).

Chen teaches the claimed invention, including various insulating material (col. 2, line 21), except for the first insulating layer being a polyimide layer. Matsuyama et al. teaches the use of the polyimide insulation layer 3a (see fig. 2D) for meeting stringent requirement such as, heat resistance, low thermal expansion coefficient and processing precision (col. 1, lines 20-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the inductor of Chen with the polyimide insulation layer as taught by Matsuyama et

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al., since the polyimide insulation layer of Matsuyama et al. would provide the inductor of Chen with advantages of heat resistance, low thermal expansion coefficient and processing precision.

Regarding claim 16, since claim 16 does not list the material for the posts, it would be understood (from Specification page 11, paragraph 1) that the post comprises of an insulating material. Chen discloses the insulating material (col. 2, line 43).

Claims 17, 47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Chang et al. (5,393,697; applicant submitted).

Chen teaches the claimed invention except for the conductive layer being gold. Chang et al. teaches the use of gold conductive layer 36 (see fig. 1) for its adhesion strength to polymer post 32.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the package inductor of Chen with the conductive gold layer as taught by Chang et al., since, the gold layer of Chen would provide the package device of Chen with better adhesion strength to a polymer post.

Claims 18, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi in view of Matsuyama et al. (5,208,656; Applicant submitted).

Chen teaches the claimed invention, including various insulating material (col. 2, line 21), except for the first insulating layer being a polyimide layer. Matsuyama et al. teaches the use of the polyimide insulation layer 3a (see fig. 2D) for meeting stringent requirement such as, heat resistance, low thermal expansion coefficient and processing precision (col. 1, lines 20-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the inductor of Takahashi with the polyimide insulation layer as taught by Matsuyama

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et al., since the polyimide insulation layer of Matsuyama et al. would provide the inductor of Takahashi with advantages of heat resistance, low thermal expansion coefficient and processing precision.

Claims 19 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Matsuyama et al. as applied to claim 16 above, and further in view of Chang et al.

Chen and Matsuyama et al. teach the claimed invention except for the protective layer comprising of a layer of nickel and a layer of gold.

Chang et al. teaches the use of gold and nickel conductive layer 36 (see fig. 1) for its adhesion strength to polymer post 32.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the package inductor of Chen and Matsuyama et al. with the conductive gold and nickel layer as taught by Chang et al., since, the conductive layers of Chang et al. would provide the package device of Chen and Matsuyama et al. with better adhesion strength to a polymer post.

Allowable Subject Matter

4. Claims 53 and 54 are allowed.

Combination presented in base claim 53 are neither disclosed nor suggested by the prior art of record.

Conclusion

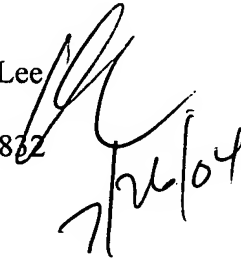
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyung S. Lee whose telephone number is (571) 272-1994. The examiner can normally be reached on M-F 5:30AM to 2:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kyung S. Lee
Examiner
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Handwritten signature of Kyung S. Lee and the date 7/26/04.